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ABSTRACT

The "Six-A" innovation model is developed from the theory that innovation is a learning process and not just an event as Fullan (1985, 1991), Beckhard and Harris (1977), Turrill (1986) and many others have advocated. Eleven sections compose this paper. The introduction gives a brief historical review of studies and research on education change. The next section explores educational change and innovation, its definitions and meanings. The third section explores why innovations fail and is followed by a section that elaborates further on theories of change, or changing. The fifth section concerns the current perspectives of change and explains five key convergent concepts on managing change. They are change and excellence, change as a learning process, change and people, change and culture, and change and leadership. Sections 6, 7, and 8 highlight the conceptual framework of the "Six-A" innovation model, presenting the two phases of innovation, the four-system framework of innovation, and the target of change in a user system. Section 9 deals with "facimilation"--a theory of changing and facilitating the assimilation of an educational innovation. Section 10 details the "Six-A" model--awareness, attitude formation, adoption, adaptation, action, and application. The three phases of initiation, assimilation, and institutionalization are addressed. A concluding section completes this paper. (Contains 64 references.) (RR)

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Management of Educational Innovations: The "Six-A" Process Model

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1. INTRODUCTION

Studies and research on educational change between the 1960s and 1970s were mainly analytical with efforts concentrated on identifying factors pertinent to change, on categorising different change models, and on implementation strategies. In the 1980s a number of studies on excellence and success in business firms (see Section 5), as well as in public services like the NHS (National Health Services, U.K.), has shifted the emphasis to the instrumental side of managing organisational changes. In the evolution of the study and practice of planned educational change, Fullan (1991) discerns four phases which he labels adoption (1960s), implementation failure (1970-77), implementation success (1978-82), and intensification vs. re-constructing (1983-90). "While previous change initiatives were not as comprehensive in scope and required less energy for implementation," as Fullan (1991:7) says, "there has been a steady accumulation of knowledge about the change process". It is the intent of this paper to add a little to this wealth of knowledge so profound.

2. EDUCATIONAL CHANGE & INNOVATION

In the world of physical as well as social sciences, it is the opinion of the writer that an ultimate goal is in the search for 'rules' of change. In the realm of the former, the major concern is on the behaviour or reaction -- that is, change -- of objects or matter under certain environments. Such events of change which scientists seek to understand are usually predictable and are expressible in mathematical terms and concrete formulas. In social sciences where the subjects of study are human beings, organisations or social structures, changes are much less quantifiable and controllable. Research in educational change and innovations belongs to this category.

Educational change has a broad scope. Studies in this area have a wide range from the macroscopic countrywide policy-making (e.g. Dalin et al., 1973) to the microscopic teaching in the classroom (e.g. Hall & Hord, 1987). Issues can cover curriculum, teaching methods, technology, roles and people, as well as organisation and administration. In the writer's view, all current studies tend to be directed at one main objective -- improving schools.

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'Innovation' is often viewed as one special kind of change and Miles (1964), for instance, called it a species of the genus 'change'. Marklund (1972) made a clear distinction between educational innovation and change:

> "The term innovation as used in school and teaching is often synonymous with the term change. If this change is on a broad scale and affects an entire school system, one frequently speaks in terms of a reform. It would be incorrect however to refer to every change as an innovation. It must imply an improvement towards a pre-determined objective. Innovation always presupposes one or more qualitative criteria." (Dalin, 1973:6)

The study focus for educational innovation varies much. While some researchers concentrate on the 'quality' aspect, others emphasise 'operationalisation'; some concern themselves with 'barriers' and 'resistance', leaving others adhering to a 'process' view. Dalin et al. (1973) in their international case studies of educational innovations, use the term innovation to mean:

> "A deliberate attempt to improve practice in relation to certain desired objectives." (Dalin, 1973:36)

This simple and concise definition of Dalin's is the one adopted in this paper and it clearly identifies three important characteristics of an educational innovation, that

(1) it is a deliberate and planned activity or process;
(2) it is goal-oriented;
(3) it is intended for improvement over existing practice.

It is necessary to distinguish between changes that come about as a result of environmental demands in which the organisation or system seeks to adapt for equilibrium, and self-initiated changes (i.e. innovations) where there is a deliberate move towards some desired future state chosen by people representative of the system. The management of change, as Beckhard puts it, is the managing of this change process - "the transition state" - moving from today's condition to some desired future state. (Beckhard & Harris, 1977: ix).

3. WHY INNOVATIONS FAIL

Fear of the unknown is one major reason why change is not a welcoming activity. This is because of the intrinsic human nature of detesting failures. Ironically, however, past experience of failures can contribute to future success. An often quoted Chinese saying is that "Failure is the mother of success". People with a positive mind learn from mistakes and it is necessary to know the common failing factors in educational innovations as pitfalls to be avoided.

Dalin has remarked that "since innovations are seldom 'good' for everyone it would be easy to find 'failures' in any innovation" (1973:232).

It is indeed very true that innovations, being complex processes over time in an ever-changing setting, are liable to failure at every possible stage from start to end. Literature abounds on why innovations fail, with different writers picking up faults where

they please along the tricky route of any innovation. Some put the blame on 'climates', others complain about the ingredients not being 'ready'. While still others focus on 'adoption', there are many who concentrate on 'delivery' or 'implementation'.

The complexity and difficulty involved in an innovation process can be easily recognised simply by looking at the diversity and large number of related factors. There are factors identified as barriers to change, factors which are conditions for adoption, and factors related to the process of change. As Hurst has remarked after his review of literature,

> "Researchers have discovered a very large number of factors which are apparently or allegedly correlated with the process [of innovation]. There are at least 60 extant examples of one type of correlation alone, and Zaltman et al.(1977) refer to some 300 variables as being potentially involved." (Hurst, 1983:5)

It would be difficult enough for a change agent just to remember such a large number of factors in an innovation, not to say manage them. A more practicable alternative is to use a typology instead and one is suggested here which hopefully can serve as a kind of map-guide for a change agent to gain a broad perspective of major innovation factors.

In this typology, factors pertaining to an innovation are broadly classified into one of the following three categories:

(1) Knowledge & Skill factors;
(2) Resource & Support factors;
(3) Human & Social factors.

The management of an innovation may be interpreted as a deliberate attempt to deal with the interactions among the user system, the innovation system, and the change agent system (see Section 7) with regard to these three categories of factors to achieve certain objectives. Innovation factors identified by various writers discussed earlier can possibly be fitted into one of these three categories. The essence of this typology rests on the understanding of the relationships of the three major constituents (knowledge and skill; resource and support; and 'people' attributes) regarding the user; the innovation; and the change agent systems. In the writer's opinion, any implementation of change is working, consciously or unconsciously, within this typology.

4. THEORIES OF CHANGE, OR OF CHANGING?

Irrespective of so many research and writings done on social change, there is not yet any firmly established theory to guarantee success in carrying out an educational innovation. Perhaps there never will be one. May be change is inseparable from uncertainty and thus we can at best only talk about the probability of success.

Literatures before the 1980s have revealed many reasons why innovations fail but one fundamental problem was insufficiently addressed -- that innovations are prone to failure not only because we lack knowledge about the system in which change takes place and/or knowledge about the nature and technicalities of the innovation itself, but also because we

do not have sufficient theoretical knowledge about the process of change. This lacking of a viable theory of social change has been noted by Bennis (1965):

> "Unfortunately, no viable theory of social change has been established. Indeed it is a curious fact about present theories that they are strangely silent on matters of directing and implementing change. What I particularly object to .... is that they tend to explain the dynamic interactions of a system without providing one clue to the identification of strategic leverages for alteration. They are suitable for observers of change, not for practitioners. They are theories of change, and not of changing." (Bennis, 1965, in Bartlett & Kayser (ed.), 1973:67)

Interestingly, the problem of a lack of a 'theory of changing' had not been recognised by many who were in the business of change during the 1960s and 1970s - who worked in the field as if they possessed that knowledge. This was a problem of 'not recognising the problem'. This was the faulty approach to educational innovations as alluded to by Fullan (1982:84) -- that planners (whether they be policy-makers or developers of innovations) had not been sensitive to the need for a 'theory of changing'. Putting it more explicitly, Fullan says,

> "I do not think that a detailed technical treatment on how to plan for change is the most profitable route to take, although such a treatment may have some benefit. The most beneficial approach consists in our being able to understand the process of change, locate our place in it, and act by influencing those factors which are changeable and by minimizing the power of those which are not. All of this requires a way of thinking about educational change which has not been characteristic of either planners or victims of past change efforts." (Fullan, 1982:88)

Fullan (1982, 1991) thus distinguishes a 'theory of change' from a 'theory of changing' in his basic premises of conceptualising the change process. The former assumes that people should be able to conceptualise the change process to be more effective, while the latter questions this very possibility. A 'theory of changing' does not concur with the possibility to alter (i.e. to increase) people's conceptual and organisational abilities merely by telling them what the concepts should be. Instead, the argument is that "Conceptualization must be integrated with the appropriate technical steps and human relations processes if it is to be useful; that is, it must be grounded in actual change events. Practical conceptual formulations can only be developed through experience and reflection" (Fullan, 1982:94).

Fullan (1982) further indicates that social change should never be treated solely as a rational, predictable phenomenon. Intuition, learning from experience, formulation and reformulation, getting something to work without necessarily knowing why it works - all have their place in planning and coping with change. With this line of thought, Fullan (1982:98) also suggests that instead of focusing on changing conditions which might not be changeable (except perhaps through prodigious effort), the most effective approach is to use different strategies in different situations. At every stage in a change process, what we do is contingent on the characteristics of the change being attempted and the situations at hand; and the concentration of the change effort is on those factors in that situation which are thought to be alterable.

This approach does require, then, the change manager to have a general knowledge of factors relevant and amenable to change. S/he will also have to possess or acquire the skills to assess to what extent factors conducive to implementation can be altered in favourable directions.

5. CURRENT PERSPECTIVES ON CHANGE

The classical theories and approaches about change before the 1980s have contributed much to one's understanding about educational change and innovations. These basics may be expressed as knowledge about the 'theory of change' and is only necessary but not sufficient for managing an educational innovation in practice. What is needed is further knowledge about 'how' to manage the innovation process with success. In other words, research and studies for 'theories of changing' are required. This is in line with what Fullan (1991:9) has pointed out, "many attempts at change fail because no distinction is made between theories of change (what causes change) and theories of changing (how to influence those causes)."

The 1970s saw many changes in organisations implemented in a planned or 'top-down' way. As Turrill (1986:10) pointed out, "we have in the past tended to think of change in packages, discrete projects or programmes ... which many perceive as being imposed by 'them' on us, that change has for most of us become a way of life." Since the 1980s there has been a shift of emphasis in management from the control model to the commitment model (Walton, 1985; Carnall, 1990). While the control model seems to produce reliable performance in stable circumstances, it has become clear that this is not enough in the fast-changing world of today. When competitive advantage can be gained not only by reactively upkeeping performance, but by proactively innovating continuously, a sustained high level of commitment from people in an organisation is required. This is the challenge which educational administrators have to face in the future, and change management is becoming more of a basic requirement for these people rather than a specialty.

A body of knowledge about managing change has evolved over the past decade from studies on excellence and success in business organisations. Words like entrepreneurial or innovative enterprises are often linked to terms such as ownership, commitment, visionary leadership, culture and politics. Such works include, to name just a few, Kanter's (1983) *The Change Masters*; Peters & Austin's (1985) *A Passion for Excellence*; Pettigrew's (1985) *The Awakening Giant: continuity and change in ICI*; and Toffler's (1985) *The Adaptive Corporation*. Several key convergent concepts on managing change have emerged from such literature and the writer sees five of them:

(1) Change and Excellence
(2) Change is a Learning Process
(3) Change and People
(4) Change and Culture
(5) Change and Leadership.

5.1 CHANGE AND EXCELLENCE

Organisational effectiveness and change management are inseparable. The hallmark of successful firms, as indicated by Kleiner & Corrigan (1989), is that their executive leadership is proactive in recognising the need for change as a necessity for survival and possesses the vision and courage to take required actions. Leathem (1989) shared a similar view when he said that the winners in tomorrow's marketplace will likely be those companies that learn to implement change quickly, with a minimum of internal disruption. McEwen et al. (1988) highlighted developing the competence, commitment and capacity for change (the three C's) of people as a vital element in the creation and maintenance of competitive advantage that should be an integral part of the strategic equations and business plans of any firm. The dependency of excellence on entrepreneurship or innovation is thus well accepted. As Carnall (1990) puts it,

> "The present level of effectiveness of our organisation provides the context within which we wish to introduce change. The more effective the present organisation (in three areas -- effective team work, organisation structures and systems) the readier employees will be to accept change. Thus we are concerned with both effectiveness and change." (Carnall, 1990:10)

In their popular work *In Search of Excellence*, Peters and Waterman (1982) have identified a number of attributes that characterise excellent companies. Being innovative and therefore responsive to change is the major criterion for success. Reid et al. (1987) have extended these characteristics to effective schools. In short, these attributes include (1) commitment, (2) expectations, (3) action, (4) leadership, (5) focus, (6) climate, and (7) slack (Reid et al., 1987:19). Basic to the line of thought of all these writers is the clear message that effective schools, like other organisations, excel because of their capacity for managing change and innovations on top of systems maintenance.

5.2 CHANGE IS A LEARNING PROCESS

Change and innovation in the packaged form is problematic. "The process is more important than the package", as Kleiner and Corrigan (1989) have said. Furthermore, change and innovation are learning processes (Beckhard & Harris, 1977; Fullan, 1982, 1991; Turrill, 1986; Kleiner & Corrigan, 1989; Carnall, 1990), and the effective organisation is the one that encourages and supports learning from change. Fullan (1982, 1991) sees 'learning' as the criterion for the implementation of change in schools. Teachers and staff who are committed to the change process are engaged in institutional learning and problem-solving. In terms of Peters and Austin's (1985) philosophy of visionary leadership, as Turrill (1986) has pointed out, such processes can only flourish in an entrepreneurial climate that legitimises experimentation, a climate where success is rewarded and people learn from their mistakes.

In his discussion about basic elements of the change process, Turrill (1986) maintained that purpose and vision, agreed and shared by people of the organisation, are needed to "pull the organisation forward". All that then remains, as he said,

> "is to find the appropriate resources, to establish an organisational climate in which people learn from their inevitable mistakes, making plenty of them but never the same ones twice and to provide the necessary leadership to help people persist." (Turrill, 1986:18)

Innovative/effective organisations are thus characterised by an experimental climate. Within such organisations, the process of change is basically a process of learning for the people involved. Taking this stance, Carnall (1990:189) distinguishes five stages in the process. He calls it the "coping cycle" - denial, defence, discarding; adaptation, internalisation. In addition, three effects need to be attended to in the coping cycle, which are the learning curve effect, the progress effect, and the self-esteem effect (Carnall, 1990:189).

Other writers have also reviewed much the same thing in the process of change. Tessler (1989), for example, distinguishes three stages of change as dissolution, passage, and renewal. During dissolution, attempts to transform things will be resisted and blocked as employees "mourn" the death of the old organisation. Such actions are due to four basic human reactions to change according to Tessler (1989) - lack of identity, lack of involvement, lack of direction, and lack of affection. During the passage stage the individuals can catch their breath, complete a period of mourning and slowly begin to accept a new corporate direction. Renewal, the final stage of change, is a time for working together, moving in the same direction.

Along similar lines, Turrill (1986:52) has elaborated on the four classic phases of shock, defensive withdrawal, acknowledgement, and adaptation in a change process. People undergoing changes typically go through these four stages, though not always in a rational stepwise fashion and certainly at varying speeds. As Turrill explained,

> "Change for the individual is basically a learning process. It often begins with feelings of dis-equilibrium, incompetence and discomfort. ... The effective change manager will, however, find ways to help and encourage them towards the positive outcomes of exploring alternatives, developing new behaviours, of adaptation, accommodation and individual growth." (Turrill, 1986:54)

Turrill was writing about managing change in the NHS (National Health Service), but much the same is applicable to schools. Reid et al. (1987), for instance, have referred to several commentators (the Schmucks, 1974; Cuban, 1984; Fullan, 1985; Purkey and Smith, 1985; Hopkins, 1986) and argued that because 'change is a process not an event', schools need to improve - and make more effective - not only their 'change process capacity', but also their understanding of the dynamics of change (Reid et al., 1987:12). The emphasis by these writers is that, in effective schools, the goal is effective implementation of innovations; it is the effecting of change.

The recognition of change as a learning process will help change-managers to break new grounds and to draw reference from other fields of knowledge such as learning theories. Dennison and Kink's (1990) learning cycle of 'do, review, learn, and apply' as a guide to experiential learning provides one such link. Joyce & Weil's (1986) approach of 'theory-demonstration-practice-feedback' provides another. Furthermore, however, the concept of change as a learning process invariably leads one to focus on people in making changes. This crucial element is the third item in the current perspective of managing change and is the next topic for discussion.

5.3 CHANGE AND PEOPLE

There are many important works relating people as an essential to successful business strategy, such as Peters and Waterman (1982), Goldsmith and Clutterbuck (1984), Hendry and Pettigrew (1986). A concrete example of this idea put into practice is the series of 'People - The Key to Success' workshops run in June and July 1987 in a number of major U.K. cities. Over 200 chief executives, directors and senior managers in British Companies attended these workshops. These workshops were designed not as a 'one-off' but as the beginning of a process of change. Sponsors for the project were the Manpower Services Commission and National Economic Development Office (McEwen et al., 1988). The very title of these workshops indicated a shifting emphasis of successful management of current times - a recognition of the most valuable resource within an organisation, its people. The work of HR (human resource) departments and promotion of staff development activities are seen as vital in successful firms of today. According to Bolam (1982), considerable importance has been similarly accorded to in-service education and training of teachers (INSET) in British schools. In Hong Kong, a most recent educational policy report focusing on the improvement of the quality of the teaching profession (ECR5, 1992) has proposed to the government plans that will incur a budget of HK$23,500 million over the next fifteen years.

Achieving competitive success through people requires organisations to do more than realise that people are an important resource for achieving competitive advantage. It requires also the development of the capacity for change and this is people dependent. In other words, if the basic premise is accepted that success depends on the capacity of change, and change is a learning process of the affected people, then proper attention to the human side of the organisation is the crux of effective management. A host of issues relating to the human nature in change thus follows from this line of thought. Resistance to change, psychological effects, self-esteem, stress and coping are on the list of commonly discussed topics.

Leathem (1989) has pointed out that it is disruption and psychological uncertainty that employees will resist, and not necessarily the change itself. The major problem in significant organisational change, according to this writer, "is not resistance itself, but rather the inability of the managers responsible for the change to anticipate it, understand its dynamics and respond effectively."

Gilbreath (1990) likewise has indicated that much misconception comes from the term resistance itself which suggests people deliberately trying to disrupt and damage. He comments quite rightly that defiance can be dealt with, but detachment and apathy present more serious problem in changes. In his suggested three "R's" to change, which includes 'refreshed' and being 'real' with a 'radioactive' vision, he goes to the extent to say that

> "People love change. We like to be refreshed. 'Re' because change represents existing strengths, abilities, and pride; 'fresh' because we like what's new or different. Something old and something new. Add these to your vision." (Gilbreath, 1990).

The key to successful changes is thus not trying to fight resistance and win, but to replace resistance as Gilbreath suggested. By building certainty with information, fear of the unknown on the part of affected people is replaced by confidence and support for the change.

It is accepted that change is often a period of stress for the people involved (Turrill, 1986; Cooper, 1987; Kuhlmann, 1988; Carnall, 1990). Successful change managers therefore need to help the affected people handle these stresses with steps to improve their capacity to respond to change in a positive way. Two activities, as suggested by Turrill (1986) to be congruent with probable future paradigms, are to provide counselling support and encourage individual self-awareness or development programmes.

One further point that needs emphasis about the 'people' aspect in managing change is the phenomenological approach (Fullan, 1991), or action frame of reference (Silverman, 1970). Though not using such terminologies, Kuhlmann (1988) puts it clearly as follows:

> "The role of subjective factors is emphasised in both field of research findings about new-product adoption and human stress in change. It matters little whether or not an innovation facilitates the employee's needs and aspirations from an objective point of view; the way in which the employees experiences the innovation, his perceptions about what is happening, and the way in which it affects him will influence his response to the change." (Kuhlmann, 1988).

Negligence, if not ignorance, on the part of senior management about this key concept on people is perhaps why so many 'top-down' approaches in managing change fail.

5.4 CHANGE AND CULTURE

From the 'classical' theories of change before the 1980s, two useful ideas are worth reiterating at this point. The first is Dalin's (1973) question 'for whom?' an innovation is good; and the second is the normative-re-educative strategy in change management. Recognising the importance of the people factor in the change process discussed in the previous section, the writer considers the success of any innovation to be directly dependent on how the participants themselves see the change as beneficial. This is the essence of the 'action approach subroutine' (AAS) used in the initiation phase to be explained in Section 9.1. And because what people consider as beneficial is inherently dependent on their norms and beliefs, an understanding of the cultural factor in change is a necessity.

Culture may be defined as the system of values, beliefs, myths, tools and practices through which we respond to our environment (Kleiner & Corrigan, 1989). Within an organisation, regardless of what it says in the employee handbooks and policy manuals, culture tells people what is permitted and what is taboo (Boyle, 1985).

The aspect of culture, in some sense, can be considered as an extension of the human element of change discussed in the previous section. Since people live and work in organisations not as single individuals but as groups, teams, committees, or coalitions, their behaviours not only reflect the organisational culture but are constrained by it.

First and foremost, as Lorsch (1986) has pointed out, the culture of an organisation can create an invisible barrier to change. The reason is that "the culture of a company is like a prism through which its management views the world" (Kleiner & Corrigan, 1989) and a deeply held set of values and norms often produces a strategic myopia, meaning that members may miss the significance of external events and may be blinded by their strongly held beliefs. Furthermore, even if a need for change may be recognised, whether the kind of change or innovation introduced fits in with the culture will determine its fate. About this question of cultural consistency, Leathem (1989) also has remarked that "if there is a discrepancy between culture and change, culture will always win". According to Kleiner and Corrigan (1989), the executive leadership can therefore bring about the desired needed changes by understanding and shaping the values of the company. The controlling concept is that culture and strategy are tied together. An understanding of the role of culture is thus essential to successful implementation of major changes.

Handy (1984) has distinguished three different kinds of culture in organisations - role culture, task culture, and power culture. This classification needs to be supplemented to include at least a fourth culture - 'development culture'. For effective and excellent schools, Reid, Hopkins, and Holly (1987) refer to what is called a 'development culture' under which teachers are supported in adopting and implementing desired changes effectively. Much the same point is made by Fullan (1991:134) in saying that collaboration in effective schools is linked with norms and opportunities for continuous improvement and career-long learning. This concept of the need for a development culture for successful schools is well summarised by Reid et al. (1987) by saying,

> "The effective school effects change (i.e. develops) effectively. It establishes a development culture; it is ready for both change (and the learning through dissonance that goes with it) and the release of creative synergy." (Reid et al., 1987:16)

Irrespective of what the culture is in an organisation, it is only natural that any significant organisational change will meet with opposition or rejection in the first instance. "Neither logic, evidence nor the participation of all concerned appear to be enough," says Carnall, "new ideas can seem unorthodox and even risky. A manager seeking support for new ideas must be sensitive to political processes." (Carnall, 1990: 118).

Culture and politics in an organisation are closely tied together. To manage effectively organisational changes, we need to understand the politics at work. This has become a widely accepted view - Pettigrew (1973, 1985); Pfeffer (1981); Lawler & Bachrach (1986) all supported this view. Under the constraint or limit of contingent factors in the

environment, administrators have to make strategic choice among alternatives how to operate. And choice creates the conditions for politics because people with different interests will support various, perhaps conflicting, views regarding these choices.

Pettigrew (1985) argues that interest groups have different goals, timescales, values and problem-solving styles. Different interest groups have different rationalities and change processes in organisations may be understood in part as the outcome of processes of competition between these rationalities expressed in terms of the priorities and values of the different interest parties. Furthermore, the common approach to an organisation's political process by focusing on the so-called 'dominant coalition' should take note that coalitions are dynamic. The interests and concerns of people vary not only with respect to the kind of change introduced, but also changes over time for the same innovation. Membership of dominant coalitions therefore varies and leaders of change should be aware of such shifts. As Turrill (1986) has rightly pointed out, a number of the dilemmas of change have their roots in the need to reconcile the needs of the organisation and the individuals who work for it. The major task of change managers, especially during the initiation phase of the change process, is to attend to such dilemmas (see Section 10.1).

5.5 CHANGE AND LEADERSHIP

Leadership, particularly of the principal, is vital for effective management of schools (e.g. HMI, 1977 and Reid et al. 1987). Support of the principal and senior management is definitely needed especially in the process of change. Concepts of leadership and change would include such ideas as vision, sponsorship, and commitment. The role of the leader in change is well documented (Peters & Austin, 1985; Bennis & Nanus, 1985; Pettigrew, 1985). It is clear that without major and sustained commitment from the top of the organisation, change initiatives eventually flounder (Turrill, 1986:16). Changes should be 'top-led' rather than 'top-driven', according to Turrill. In much the same way, McEwen et al. (1988) have remarked that leadership is the linchpin in any significant changes. Without the exercise of positive leadership at chief executive and board level, effective change does not take place.

The dilemma of change, as pointed out by Turrill (1986), lies in how to achieve the necessary overall top direction whilst encouraging change at the grass roots. This argument, however, needs a little expansion to include change in top management itself as a prerequisite -- a 'top-led' change has to start from the top itself.

Change, when considered as the transition management (Beckhard & Harris, 1977) from the present to the desired state, is based on a vision. We have to have a picture of the present as well as a vision for the future end state. We need to know where we want to go before planning the route, as it is commonly said. Moreover, the vision needs to be holistic and not just partial. It has better to be shared rather than just contained in the head of the leader.

Vision not only gives a picture of what we are seeking to change but also an impetus. As Carnall (1990) has pointed out,

> "The management of change is often a matter of the management of image. Create the image of success and it is surprising how quickly stereotyped attitudes can be changed." (Carnall, 1990:115)

Likewise Turrill (1986), writing about the National Health Service in the U.K., has indicated that leaders need to have a 'helicopter view' and that change requires a critical mass of visionary supporters if it is to become self sustaining. Tessler (1989) shares much the same thought by considering vision as the energising force that aligns people within an organisation and commits them to a common future because they can "see" what it is going to look like.

Having a shared vision is the starting point of the change process; and, to keep the ball rolling, sponsorship is required. Leathem (1989) interprets a sponsor as the person or group within the organisation who can legitimise the change, and he advocates the building of a network of cascading sponsorship - that each level of sponsorship should demonstrate a strong belief that the change needs to occur, and should be able and willing to commit the resources necessary for the project to succeed. Conner (1988) went even to the extreme to say that there is no such thing as "bottom-up change" because he was convinced that no sustained, substantive change occurs without effective sponsors who are senior-level managers with the organisational power to legitimise change and commit resources to implement it. His key to a successful change effort is simply this: identify a sponsor; get that person to sponsor the change; and maintain the sponsor's commitment throughout the change project (Conner, 1988).

It is easy enough to say that senior management support or sponsorship is the key to successful changes. The kinds of support and the way they are delivered, however, depend much on the skills and styles of leadership.

As early as in 1978, Burns already distinguished two leadership behaviours - the transforming and transactional styles. The transforming leadership style has come to be regarded as crucial for management in the 1990's. Turrill (1986) argued that change demands more of the transforming style, saying that transforming leaders (TL's) operate at a different level from transactional managers (TM's). TL's would engage totally with their followers, in such a way that both leader and followers are mutually empowered and motivated. And while TM's worry about the task and the people associated with the task, TL's are emotionally involved with the institution and its aims. Furthermore, TL's work with ideas, ideals and visions (Turrill, 1986:45). With a systems perspective, the essence of the transformational leadership style is that

> "Transformational leaders derive their power from their followers and operate by empowering their followers. The process is symbiotic, the whole is greater than the sum of its parts" (Turrill, 1986:48).

This style of leadership aims to build and maintain a synergistic team among the subsystems involved in the change. Basically a number of change facilitating skills that are people-oriented is assumed, including skills such as co-ordinating, communicating, informing, questioning, listening, and training. Adam's (1987) list of five blocks in the

process of change (perceptual blocks, emotional blocks, cultural blocks, environmental blocks, cognitive blocks) serves as a good illustration of the range of problem-solving skills involved. Adam has suggested various techniques for 'block-busting', which are mainly information collecting methods and application of thinking aids, such as synectics. All of these skills or techniques can be developed, but there is the pre-condition that the right attitude is there in the leadership. Carnall (1990) makes a point in saying,

> "Sensitivity and empathy, along with involvement, openness and the rest, are the order of the day [for the leadership] in a period of change." (Carnall, 1990:190)

In their summary of what is known about effective schools, Reid et al. (1987:29) have listed ten attributes. The very first of these is that the leadership role of the principal and the senior management team is vital. Although these writers commented that there is little scientific evidence to support this frequently reported assertion, the importance of leadership is difficult to deny. In the *Ten Good Schools* (HMI, 1977), Her Majesty's Inspectors concluded essentially the same thing. It was pointed out that 'without exception the most important single factor in the success of these schools is the quality of leadership at the head.' Such qualities listed by the HMI's include imagination and vision; realism; holistic view; specific educational aims; communication skills; sympathetic understanding with good humour; sense of proportion; dedication; and power-sharing. These are perhaps 'the rest' referred to by Carnall (quoted above) as the order of the day for the head of a school in a period of change.

6. INNOVATION AS A WHOLE

It may be appropriate here first to highlight the conceptual framework of the "Six-A" innovation model -- one that uses an "action approach" (according to Silverman, 1970) or "phenomenological approach" (according to Fullan, 1991) to work within a general systems perspective for changing. A systems view is helpful in the understanding of what an educational innovation, as a whole, is about. This and the following sections 7 & 8 attend to this aspect, explaining the writer's way of looking at an innovation using a systems perspective. The later sections address the process of carrying out an innovation with the "action approach".

In the broadest sense, the writer considers any innovation to involve basically two phases: a phase of creation by a producer (or innovator); and a phase of utilisation by the user (or the client). The writer uses the term 'innovator' in a sense different from that of the 'change agent' or 'change facilitator'. While the innovator is involved with the task of creation or production of the new 'thing', the change agent is functionally different with the task of managing the change process. There is no argument that both roles may be taken up by the same person or group of persons but a distinction of the two different functions is necessary. In other words, it is important to recognise that producing an innovation is one thing, implementing it is another.

Moreover, the creation phase is not necessarily separated from the utilisation phase sequentially. User participation in evaluating and feeding back for improvement or

modification during the development process is valuable in several aspects. The product developed will be of better quality, and what is more important, better accepted by the users. Besides, commitment generated by the involvement on the part of the users will also much facilitate the change process. The SCHOLIS project on CASA (Computer Assisted School Administration) in the Netherlands (Visscher, 1991) serves as a good illustration of this approach.

6.1 THE CREATION PHASE

Included in the phase of creation of an innovation would be sub-stages as follows:

(1) Perceiving a new idea or concept;
(2) Transforming the idea into a 'product', possibly incurring research and development, as well as testing and trialing;
(3) Outputting the product in a utilizable form.

These steps form the essential procedure for an innovation following the Research-Development-Dissemination model when the final step of disseminating the product to the user is added. Sometimes the step of evaluation is incorporated as well. However, leaving the innovation at this stage is obviously seen to be incomplete -- by leaving unanswered the question of whether the utilisation by the user is successful or not.

6.2 THE UTILIZATION PHASE

The utilisation phase of an innovation in this context is taken to mean both initiation and implementation of the innovation on the part of the user. Sub-stages in this phase would in general include:

(1) Awareness;
(2) Attitude formation;
(3) Decision to adopt or reject;
(4) Learning and trialing;
(5) Routinised application.

The final stage of routinised application, or institutionalisation, of an innovation in fact marks the end of the change process. This is the stage when the innovation has become something no longer new to the user system, but something which has been incorporated by it as a matter of routine. When this stage is reached, the innovation can be said to have been successfully implemented (sustained implementation), or institutionalised in the case of an organisation adopting the innovation.

Concisely, in the writer's opinion, the whole process of an educational innovation is the transition from its creation to utilisation.

7. A FOUR-SYSTEM FRAMEWORK OF INNOVATION

The previous description of stages in an innovation inevitably over-simplifies a very complex process, and the sequence of steps does not necessarily follow the order as listed. It is only illustrative of the kind of interactions involved amongst the systems concerned in a change. Writing about systems involved in a change, Bennis has the following to say,

> "The process of planned change involves a change agent, a client system, and the collaborative attempt to apply valid knowledge to the client's problems." (Bennis, 1965, in Bartlett & Kayser (ed.), 1973:68)

Putting it in more concrete terms, Bolam (1974) describes the three major factors in the process of innovation over time as the change agent system, the user system, and the innovation system. Following the view that the systems and action frame of reference can be treated as complementary, Bolam conceptualises these three factors as "open systems but particular account is taken of the way in which individuals and groups within these systems construct their own phenomenological worlds and thus affect all aspects of the organisation, including its innovation activities" (Bolam, 1974:72).

An innovation system, in the simplest sense, is the new practice introduced deliberately for some intended benefit.

A change agent system can be a single individual like a school principal or teacher, or a team of people implementing the change. It can also be internal to the organisation, external to it, or a combination of both in terms of membership.

A user system can vary much indeed in size and scope. In the case of a country-wide or district-wide innovation, the user system would include a number of subsystems such as the central education authority, schools or educational institutions affected, the teaching force; perhaps parents and other interested parties too. When the user system is a single school, subsystems identifiable might include part or whole of the teaching staff, the school management board, office staff, administrative staff, and perhaps students and parents too. The user system, or client system, is therefore innovation-dependent -- not only on its nature and scope, but also on the stage reached in the innovation process.

One basic assumption common to the three-system framework of innovation according to Bennis or Bolam is that an innovation system is already in existence, that it has already been created or developed and is ready for utilization. A 'creating system', in other words, is arbitrarily left out and the concern is with the utilisation phase of the innovation. It may be true that many innovations are created external to the user system but a more comprehensive conceptual framework for innovation should include, in the writer's view, the 'creating system' as well.

To recapitulate, any innovation can be viewed as a framework consisting of four systems: the innovation system, the change agent system, the user system, and the creation system. Using CASA as an example, the four-system conceptual framework for an innovation can be illustrated as explained below.

In the case of a school using self-developed CASA software, for instance, the school can be considered to have incorporated all in one the creating system, change agent system, user system, and the innovation system. Within the school, it might be further identified that the creating system consists of a group of staff with the expertise for developing the software (the innovation system) for application. This group of staff, perhaps with the head added, might be acting as the change agent system to help the whole teaching staff (the user system) in the use of the CASA innovation system.

It will be appreciated that a total innovation including both the creation stage and the utilisation stage is more complicated to manage than one that involves only adoption and application. Interactions between the creation system and the user system have to be taken care of preferably at an early stage of the innovation process whenever possible as demonstrated by the SCHOLIS case on CASA (Visscher, 1991). This prepares for a more solid foundation for success subsequently in the utilisation phase of the innovation by the user.

In many cases, innovations are created and developed external to the user system, the process of innovation then is primarily concerned with the utilization phase as explained in Section 6. This is the focus for discussion in this paper on the process of innovation in the following sections.

8. TARGET OF CHANGE IN A USER SYSTEM

Any aspect of the user system can be the focus of change in an innovation. In the case of innovations in a school, a useful taxonomy to help focus one's attention can be adapted from the systems view of Leavitt, Dill, and Eyring (1973:9). They consider that an organisation can be represented by four interacting subsystems namely structure, task, technology, and people as depicted in the figure following:

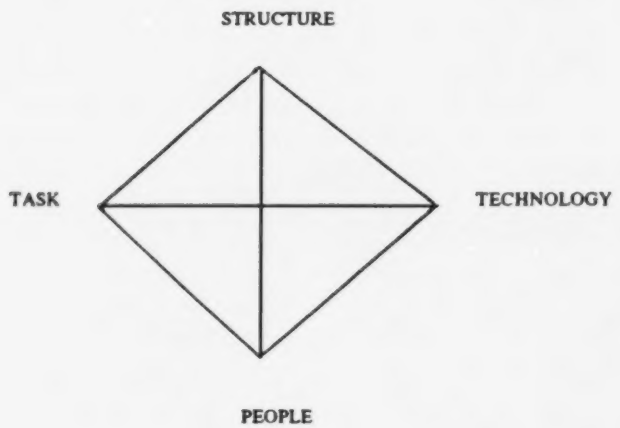

Figure 1. Four Subsystems of an Organisation

Any innovation system created would have as its primary target the objective of changing some aspects in one of the above subsystems in an organisation. The mutual dependency of these subsystems and their interactions within the organisation, however, would exclude the possibility of changing only the primary target without affecting the others.

Using CASA as an example of an innovation system and expanding on the above taxonomy, it is proposed to look at the innovation in the following manner by adapting Leavitt's framework:

(1) The task-structure-technology-people representing the user organisation is put in a pyramidal form.

(2) Since technology is the primary target of innovation in CASA, the pyramid is drawn with this subsystem at the apex. The other three subsystems form the base of the pyramid.

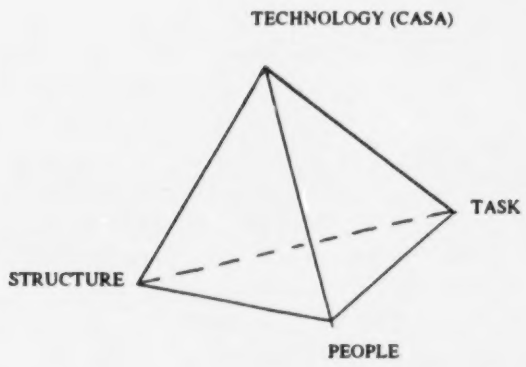

Figure 2. Target of Change & Organisational Subsystems

Such a three-dimensional figure not only indicates the interacting subsystems but also carries the meaning that an innovation on the primary target (the technology subsystem in this CASA example) requires a supportive base of the other three subsystems and relevant changes in them must be taken into account in the innovation process to achieve success.

For other innovations where the primary target of change may be any one of the subsystems of structure, task, or people, a similar pyramidal organisational diagram with a different apex can be drawn.

9. "FACIMILATION" -- A THEORY OF CHANGING

'Implementation' is such a common term and a crucial one used in innovation that any writer on the subject would find it almost impossible to avoid. In general terms, 'implementation' is the phase in the innovation process that follows the 'initiation' phase. The use of the term 'implementation' probably bears a close relation to the choice of the title 'change agent' widely used. Both terms, however, carry unfortunately a misleading implication in the management of educational innovations -- that innovations are something that can be implanted into an organisation by some agent. This line of thought is then naturally followed by much concentration on resistance to change and ways of overcoming it. With such a classical perspective, 'change agents' are typically people employed by the management to 'implement' something new (and not welcoming probably) into the organisation.

With the current perspectives of change (Section 3) in mind, however, a more humanistic approach appears to be more promising in managing school innovations. With a phenomenological approach that emphasises meanings of the innovation to the actors concerned (Fullan, 1991), there is a better chance of managing change with success. The primary role of a change manager is then helping people to learn during the change process.

In their Concerns-Based Adoption Model (CBAM), Hall (1987) and her colleagues use the term 'change facilitator' rather than 'change agent' that more vividly describes the role which this subsystem should play. According to Hall & Hord (1987),

> "... facilitation is, indeed, the task about which we are talking. The term agent suggests a power-invested, one-way, coercive/manipulative approach to change that from our research and experience, appears to be unreasonable and impossible. The facilitator's job is to facilitate, which means to assist others in ways relevant to their concerns so that they become more effective and skilled in using new programs and procedures." (Hall & Hord, 1987:11)

Literature reviews note that many educational innovations often fail because they lack proper attention to implementation (Doyle & Ponder, 1977; Brown, 1980; Hurst, 1983; Morris, 1986), and the case of Cambire School is a classical example (Gross, Giacquinta, & Bernstein, 1971). In the writer's view, lack of attention to implementation is only part of the story; lack of an understanding of 'how' is also a problem. With regard to the latter, it is suggested here that the term ***implementation*** is better replaced by the term ***assimilation*** in describing the phase that follows initiation in the process of an innovation. Assimilation spells out more clearly the concept of an innovation being absorbed into a system, with a change facilitator system catalysing the process, rather than the traditional view of an innovation being implemented in it by a change agent.

> ***"FACIMILATION" -- Facilitating the assimilation of an educational innovation -- is the basic premise of the theory of changing in the "Six-A" model proposed in this paper.***

10. THE "SIX-A" MODEL OF AN INNOVATION

A working model of managing an innovation process suggested in this paper is illustrated in the figure following. To be of value to the practitioner, a model has to be unavoidably prescriptive in a sense, providing a kind of reference guide for the change facilitator system to follow in the process of helping the user system assimilate successfully the innovation system.

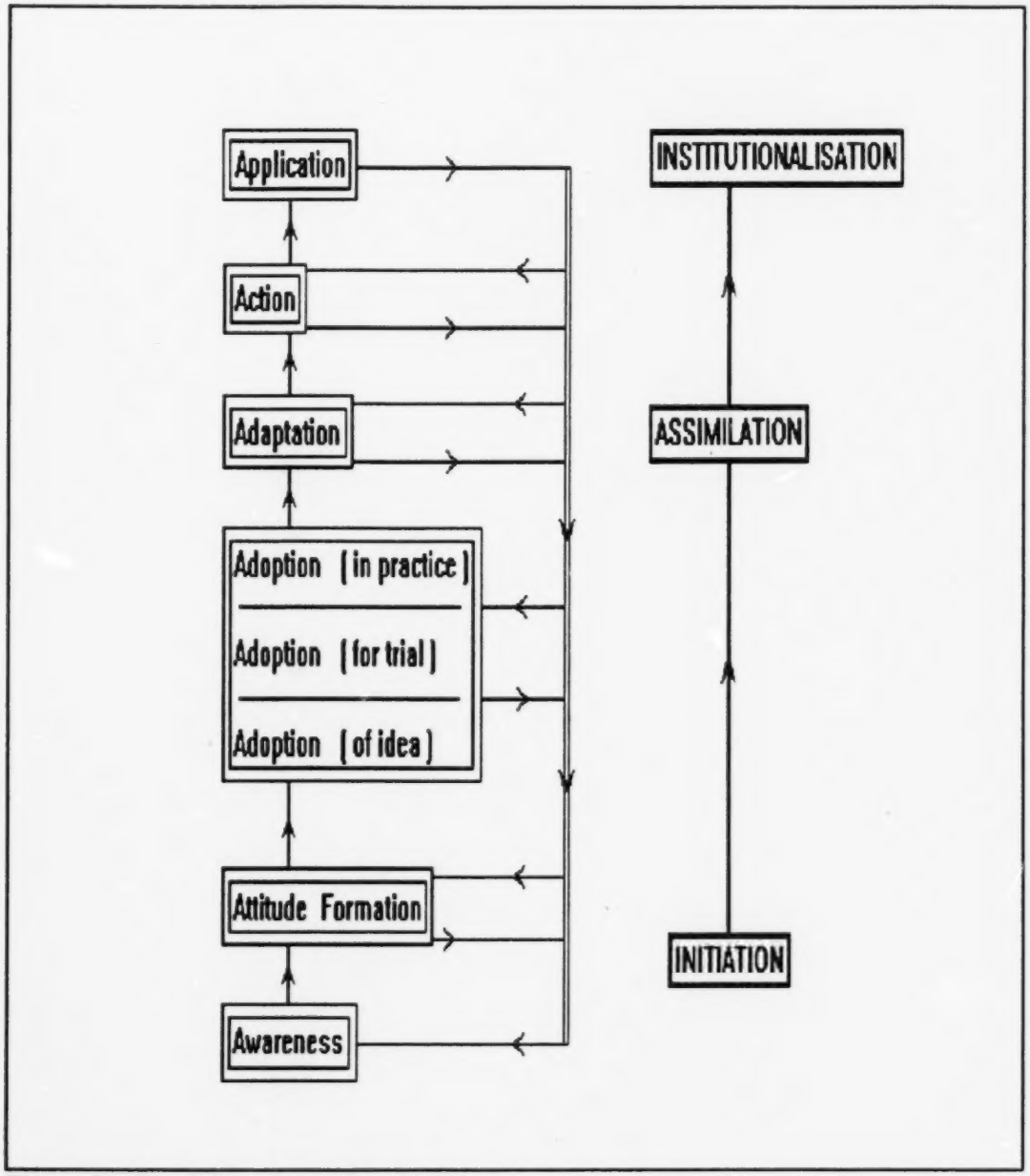

Figure 3. The SIX-A Innovation Model

The main concern in this model is the process of utilization by individual schools of an innovation system created and developed externally, with a change facilitator system (either internal or external) managing the process. The whole process of an innovation is a non-linear one and consists of re-cycling loops channelling through six broad stages:

(1) Awareness
(2) Attitude Formation
(3) Adoption
(4) Adaptation
(5) Action
(6) Application

These six "A" stages are in fact interrelated and overlapping, and can be grouped into three main phases: the first being the *initiation phase* including awareness, attitude formation, and adoption; the second being the *assimilation phase* including adaptation and action; the third being the *institutionalisation phase* including action and application.

In this model, an initiation phase precedes assimilation. The sequence of steps during the innovation process follows a 'sequential' order through the six stages of awareness, attitude formation, adoption (of idea, for trial, in practice), adaptation, action, and application. The cybernetic loops channelling among the different stages indicate that these stages, although shown as discrete and sequential, are in fact 'interfering' with one another. For instance, trialing of an innovation will bring the level of awareness and understanding about the innovation to a different level compared to initial awareness about it. Different attitudes will also be formed as a result of trial which might affect decisions for subsequent actions.

10.1 THE INITIATION PHASE

The initiation phase is the transition from the state of knowing that an innovation exists to the state of making a decision of adoption (or rejection). During the initiation phase, the change facilitator should be working in a cyclic process involving awareness and attitudinal changes of actors concerned in the innovation. The key feature and approach during this phase should be one following the "action approach" (Silverman, 1970) or the "phenomenological approach" (Fullan, 1991). The meaning of the innovation, for the actors concerned, e.g. teachers and clerical staff in the case a school innovation, is the working target of the change facilitator system.

To get to the stage of decision for adoption is the primary task before anything else can follow. In this regard, a change facilitator can consider taking the following strategies:

Strategy 1: Defining the 'Relevant System in Focus' - RSF;
Strategy 2: Searching and communicating information to raise level of awareness of RSF about the innovation;
Strategy 3: Building common grounds of worth for the RSF.

Even for innovations at the individual institutional level, the user system is often consisting of a large number of subsystems. It is impractical for a change facilitator to attempt to manage the entire user system as a single entity during the change process. Instead, it is more applicable to define a span of focus at a certain time for a certain situation (or phase) during the change process. In other words, the change facilitator, with a 'dynamic systems view', is situational in defining the system boundary with relevance to the objective(s) at different phases. People identified as key persons at different stages form the 'Relevant System in Focus' - RSF, i.e., the 'working system' isolated for attention by the change facilitator.

Any innovation will carry different meanings to different user subsystems. Dalin (1973) has pointed out that the question of whether an innovation is beneficial or not depends on 'to whom?'. It is argued that successful assimilation requires that relevant subsystems see some worth of the innovation from their stand point at this initiation phase of the change process, e.g. people see from the inception of CASA how useful it was to them. The major task of the change facilitator is to help merge (or make overlaps as much as possible) the initial incongruent sets of goals brought into the user system by various actors (see Figure 4 below). The key features involved in the initiation phase are repeated here for clarity.

(i) Defining the Working System:

(1) Identifying all subsystems of relevance to the innovation - forming the total system.

(2) Extract from the total system, at different stages of the change process, the 'Relevant System in Focus' - 'RSF'.

(3) Situational expansion or contraction of RSF as guided by results of formative evaluation.

(ii) Action Approach Subroutine (AAS):

Between stages within the change process, a cyclic process of steps is taken:

1. Analysis of present situation;
2. Clarification of meanings within RSF;
3. Contraction or expansion of RSF if necessary;
4. Search and dissemination of needed information to reduce uncertainty;
5. Evaluation and selection of alternatives;
6. Solicit agreement on common set of objectives for next stage and commitment from RSF.

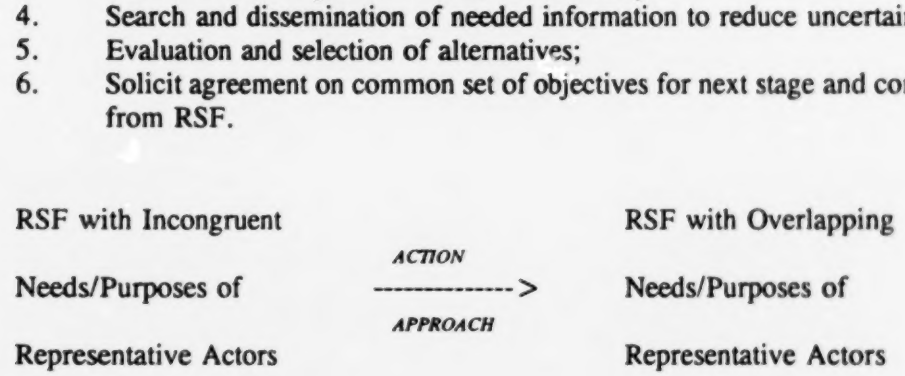

Figure 4. Merging of Innovation Goals

The term awareness used in this context includes information, knowledge, and understanding of the innovation system on the part of the RSF. Different levels of awareness will lead to different attitudes of the actors concerned, subsequently leading to adoption or rejection of the innovation, as well as different degrees of ownership of it. The role of the change facilitator system during the initiation phase is one of transmitting knowledge, raising concern, and communicating information among the working subsystems defined. The provision of information about the innovation system to the participants is particularly important at this stage. In more explicit terms, Hurst (1983:57) suggests that information about the innovation system to be communicated would include: relevance or desirability; effectiveness or reliability; feasibility; efficiency; trialability; and adaptability.

During the initiation phase, it can be said that the bias or concentration for the change facilitator system is, according to the typology of innovation factors (Section 3), more on knowledge than skills and support. For the assimilation phase, however, the emphasis would be on skills training and support rather than basic knowledge about the innovation system.

The stage of adoption marks the beginning of the assimilation phase. For major changes, it is simply a sensible and natural way to assimilate the new 'thing' by adopting on a trial basis before adopting for real practice. Thus adoption of an innovation may be sub-divided into three levels:

(1) the lowest level (level 1) is the adoption of an idea about a certain innovation, with a decision to search for more information, knowledge, and understanding for further consideration;
(2) level 2 is the adoption of the innovation on trial, and marks the beginning of the assimilation phase;
(3) level 3 is the adoption of the innovation in practice -- with the gaining of enough confidence, knowledge and skill, the innovation is put into action in real practice.

For large and complicated innovations, adoption for practice is usually preceded by pilots or trials. This is a more secure way to step into the unknown, to face uncertainty, without risking too much. In case the impact of the innovation on the user system is found to be too undesirable or if the adaptation is too costly, the user system can still revert to its original state.

10.2 THE ASSIMILATION PHASE

The assimilation phase includes adaptation and action by the user system. It is immaterial whether adaptation precedes action, or the reverse. It is a cycle of events after the user system has adopted the innovation for trialing. It is a phase of experimentation for the user system in essence. When the innovation is used in the real life situation within the organisation, reactions or feedbacks from different subsystems within the organisation will lead to two kinds of adaptation possible:

(1) adapting the innovation to meet user system requirements, i.e., tailoring or modifying the innovation system to meet the organisation's need;

(2) adaptation on the part of the user system to suit the innovation system, i.e., modifying existing subsystems within the organisation (such as structures, tasks, habits, etc.) to achieve compatibility with the innovation system.

These two kinds of adaptation are not mutually exclusive and both are often required together. In this regard, Section 8 has explained in detail the relationship between the target of change and the other sub-systems of an organisation.

It is worth mentioning perhaps that feedbacks during the assimilation phase are not limited only to the adaptations and actions taken. In effect the degree of awareness and attitudes of people in the user system are also unavoidably affected as a result. Thus the whole process of innovation is an interrelated one, although a breakdown of it into component stages is required for discussion here.

The role of the change facilitator during this phase of the change is one of training, support, and problem-solving in practice. The recommended approach is one of theory-demonstration-practice-feedback (Joyce & Weil, 1986). The prime objective is to help and guide the user system in assimilating the innovation, i.e. in getting accustomed to using the innovation, gaining confidence and achieving with it. With enough experience and learning through action using the innovation system, the innovation can be applied in full with confidence.

Regarding curriculum innovations, three distinct perspectives that underlie the various attempts to explain the reasons for the gulf between planned intentions and subsequent outcomes have been pointed out by Morris (1987). These perspectives are (1) technical inefficiencies, (ii) power conflict, and (iii) neglect of implementation. Furthermore, two distinct strands are listed under the last perspective. As Morris has written,

> "The first strand has viewed teachers and other innovation users as a reactionary and ultra conservative group who do not appreciate the benefits which will arise from an innovation. ... The other strand has emphasized that innovation users are reasonable decision makers who are willing to change but will only do so if they perceive the overall benefits of changing to be greater than the overall costs." (Morris, 1987: 52)

The writer shares the view that willingness on the part of potential innovation users is necessary and their perception of the overall benefits of changing is essential. This is what the initiation phase in an innovation process is all about. However, it is argued that willingness to change is one thing, whether the potential innovation users can or be able to do so is another. This last question is exactly what assimilation should address. In other words, during the assimilation phase of the innovation process, potential users need to be developed to become effective users of the innovation. Training and support for the parties concerned are the most crucial elements to overcome general feelings of insecurity and temporary incompetence during this period of uncertainty.

In school-based innovations, acquisition of technical skills and subsequent transfer to the workplace on the part of school staff is the prime objective of the assimilation phase. In this regard, Joyce's (1986) approach in training teachers to learn a teaching repertoire has much to be borrowed. Quoting from this renowned trainer of teachers,

> "The first step is to teach everyone involved in training about the problem of transfer and what they can do to overcome it. ... Teacher trainees must be mentally and emotionally prepared to engage in the practice necessary to permit new learning to take place. ... The teacher must accept responsibility for the struggle to achieve transfer. ... They (the teachers) forecast the problem for themselves and consciously push themselves through the period of discomfort, deliberately altering customary patterns to accommodate the new skills and viewing the dislocation of familiar skills as a challenge to be overcome." (Joyce & Weil, 1986:478)

A major part of the approach of Joyce & Weil is the development of a high degree of skill by thorough training in an adequate time frame. While recognising that there are quite a number of formulations of training elements, these writers have identified four conditions which appear to be both necessary to and adequate for the development of job-related skills in most vocations and professions (Ibid.: 479):

(1) the exploration of the theory of the skill through lectures, discussions, readings, and so forth;
(2) the demonstration of the skill (modelling);
(3) the practice of the skill under simulated conditions;
(4) feedback about performance.

10.3 INSTITUTIONALISATION

With successful initiation and assimilation, people within the user system will be able to master the skills required for the innovation with confidence, gaining the benefits of the innovation deliberately intended at the start. The innovation will be no longer something new to the organisation, and the application of it will become a matter of routine. In other words, the innovation will have been incorporated as a subsystem into the organisation and the assimilation phase reaches a sustained stage. This end state of the innovation process is the stage of application, when the mission of the change facilitator system is accomplished.

Learning by action consolidates the participants' skills and confidence in using what originated as an innovation. When the user system on its own can finally apply the innovation system in routine operation, gaining the benefits originally set out to be achieved, institutionalisation is said to be reached, marking the end of the whole innovation process.

11. CONCLUSION

Undertaking an educational innovation is much like going for an adventure. Time and effort needed on the part of all participants as learners and adventurers are naturally much more than that of joining a packaged tour. To guarantee a better chance of success for an educational innovation, the writer is of the opinion that such investments are unavoidable. Ironically that is what makes the journey more rewarding to the committed team members.

The "Six-A" innovation model is developed from the theory that innovation is a learning process and not just an event, as Fullan (1985, 1991); Beckhard & Harris (1977); Turrill (1986), and many others have advocated (see Section 5.2). The model has been found practicable from the personal experience of the writer in managing some innovations in his own school over the past years, and it is also supported with empirical evidence from a study on CASA in Hong Kong (Fung, 1992). As a final remark, the writer would like to add one final comment about the learning element during an educational innovation process. While learning to develop the skills to handle an innovation system (for example, operating the CASA software) is necessary for specific innovations, this alone is limited in scope. What is more important is the 'training' or development, at the same time, of the participants for the capacity for change, and also their understanding of innovating, i.e., generating a developmental culture in schools, as Reid et al. (1987) have said. Given that leaders and participants in educational innovations understand and accept that change is a learning process on their part, they are more likely to appreciate the subjective meanings (Fullan, 1991) of one another about an innovation; more likely to change their attitudes; more likely to commit their time and effort; more persevering in problem-solving; and thus more likely to keep improving continuously themselves and their schools. This paper hopefully might contribute some help in this direction.

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REFERENCES

Adams,J.L. (1987)
Conceptual blockbusting
Harmondsworth: Penguin

Bartlett,A.C., & Kayser,T.A. (eds). (1973)
Changing organizational behavior
Prentice-Hall, Inc., Englewood Cliffs, New Jersey

Beckhard,R. & Harris,R.T. (1977)
Organizational transitions: managing complex change
Reading, Mass.: Addison-Wesley

Bennis,W.G. (1965)
'Theory and method in applying behavioral science to planned organizational change'
in *The Journal of Applied Behaviorial Science,* 1965, pp337-360
Also in A.C.Bartlett & T.A.Kayser (eds.) *Changing organizational behavior,* Prentice-Hall: Englewood Cliffs, New Jersey

Bennis,W.G. & Nanus,B. (1985)
Leaders
Harper and Row

Bolam,R. (1974)
Planned educational change: theory and practice
University of Bristol, U.K.

Bolam,R. (1976)
Innovations in INSET: practice and theory
Paris, OECD

Bolam,R. (ed.) (1982)
School-focussed in-service training
London, Heinemann

Boyle,R. (1985)
'Why wrestle with jellyfish? Lessons in organizational change'
in *National Productivity Review,* Spring, pp180-3

Burns,J.M., (1978)
Leadership
Harper and Row

Carnall,C.A. (1990)
Managing change in organizations
Prentice Hall International (UK) Ltd

Cooper,C.L. (1987)
'Coping with stress'
in *Science and Business Link-up*, April, pp38-40

Conner,D.R. (1988)
'The myth of bottom-up change'
in *Personnel*, October, 1988, pp50-53

Cuban,L. (1984)
'Transforming the frog into a prince: effective schools research, policy & practice at the district level'
in *Harvard Educational Review*, 54, pp2

Dalin,P. et al. (1973)
Case studies of educational innovation: IV-Strategies For Innovation in Education
CERI, Paris, OECD

Dalin,P. (1978)
The limits of educational change
London: Macmillan

Dennison,B. and Kink,R. (1990)
Do, review, learn, apply: a simple guide to experiential learning
Blackwell Education

Doyle,W., & Ponder,G. (1977)
'The practicality ethnic in teacher decision making'
in *Interchange*, 8(3)

ECR5. (1992)
Education Commission Report No.5 -- The Teaching Profession
The Education Commission, Hong Kong

Fullan,M. (1973)
'Thornlea school, Ontario, Canada'
in CERI *Case studies of educational innovation, 3 - at the school level*
OECD, Paris

Fullan,M. (1982)
The meaning of educational change
New York: Teachers College Press

Fullan,M. (1985)
'Change processes and strategies at the local level'
in *Elementary School Journal,* 85, 3, pp391-421

Fullan,M., Miles,M.B., & Taylor,G. (1980)
'Organizational development in schools: the state of the art'
in *Review of Educational Research,* 50, 1, pp121-184

Fullan,M. (1991)
The new meaning of educational change
Cassell Educational Limited, London

Fung,A.C.W. (1992)
Management of Educational Innovation: The Case of Computer-Aided Administration
Ph.D. thesis in preparation, Institute of Education, University of London

Gilbreath,R.D. (1990)
'The myths about winning over resisters to change'
in *Supervisory Management,* January, pp1-2

Goldsmith,W. & Clutterbuck,D. (1984)
The winning streak: Britain's top companies reveal their formulas for success
London: Weidenfeld and Nicolson

Gross,N., Giacquinta,J.B., & Bernstein,M. (1971)
Implementing organizational innovations: a sociological analysis of planned educational change
Harper International Edition

Hall,G.E. & Hord,S.M. (1987)
Change in schools - facilitating the process
State University of New York Press

Handy,C. (1984)
Organizations
2nd ed., Harmondsworth: Penguin

Hendry,C. & Pettigrew,A. (1986)
'The practice of strategic human resource management'
in *Personnel Review,* 15(5), pp3-8

HMI (1977)
Ten Good Schools
Her Majesty's Inspectorate, DES London: HMSO

Hopkins,D. (1986)
'The change process and leadership in schools'
in *School Organisation,* 6, pp1

Hurst,P. (1983)
Implementing educational change - a critical review of literature
Occasional Paper No.5, Department of Education in Developing Countries, University of London Institute of Education

Joyce,B., & Weil,M. (1986)
Models of Teaching
Prentice-Hall International, 3rd edition

Kanter,R.M. (1983)
The change masters: corporate entrepreneurs at work
London: Counterpoint, Unwin Paperbacks

Kleiner,B.H. & Corrigan,W.A. (1989)
'Understanding organisational change'
in *Leadership & Organization Development Journal,* Volume 10, Number 3, pp25-31

Kuhlmann,T.M. (1988)
'Adapting to technical change in the workplace'
in *Personnel,* August, pp67-69

Lawler,E.E. & Bachrach, S.B. (1986)
Power and politics in organizations
New York: Jossey-Bass

Leathem,J.T. (1989)
'Managing organizational change'
in *Business Quarterly,* Summer, pp39-43

Leavitt,H.J., Dill,W.R., & Eyring,H.R. (1973)
The organizational world
Harcourt Brace Jovanovich, Inc., New York

Lorsch,J. (1986)
'Managing culture: the invisible barrier to strategic change'
in *California Management Review,* Winter, pp95-109

Marklund,S. (1972)
The new role of the teacher in Swedish innovative schools
OECD, Paris

McEwen,N., Carmichael,C., Short,D., & Steel,A. (1988)
'Managing Organizational change - a strategic approach'
in *Long Range Planning*, Vol.21, No.6, pp71-78

McLaughlin,M.W. (1976)
'Implementation as mutual adaptation: change in classroom organization'
in *Teachers College Record*, Vol 77, no. 3 (1976), pp339-351

Miles,M.B. (ed.) (1964)
Innovation in education
Teachers College, Columbia University

Morris,P. (1986)
'Teachers' perceptions of the barriers to the implementation of a pedagogic innovation: a South East Asian case study'
in *International Review of Education*, 31 (1)
Paris: UNESCO

Morris,P. (1987)
'Curriculum innovation and implementation: a cautionary note'
in *Educational Research Journal 1987*, Vol. 2, pp49-54
Hong Kong

Peters,T. & Austin,N. (1985)
A passion for excellence
Fontana Paperbacks

Peters,T. & Waterman,R.H. (1982)
In search of excellence
New York, Harper and Row

Pettigrew,A. (1985)
The awakening giant: continuity and change in ICI
Oxford: Basil Blackwell

Pettigrew,A. (1973)
The politics of organizational decision-making
London: Tavistock

Pfeffer,J. (1981)
Power in organizations
New York: Pitman

Purkey,S.C. & Smith,M.S. (1985)
'School reform: the district policy implications of the effective schools literature'
in *The Elementary School Journal, University of Chicago*, 85, pp3

Reid,K., Hopkins,D., & Holly,P. (1987)
Towards the effective school
Basil Blackwell: Oxford

Schmuck,R.A. & P.A. (1974)
A humanistic psychology of education making the school everybody's house
Mayfield: National Press Books

Silverman,D. (1970)
The theory of organisations
Heinemann Educational Books

Tessler,D. (1989)
'The human side of change'
in *Director,* October, 1989, pp88-93

Toffler,A. (1985)
The adaptive corporation
London: Pan Books Ltd

Tunstall,W. (1986)
'The breakup of Bell System: a case study in cultural transformation'
in *California Management Review,* Winter, pp110-24

Turrill,T. (1986)
Change and innovation
The Institute of Health Services Management, U.K.

Visscher,A.J. (1991)
'Computer assisted school administration - the Dutch experience'
in *Computer assisted school administration & management: An international analysis, Journal of Research on Computing in Education,* Volume 24, Fall 1991

Walton,R.E. (1985)
'From control to commitment: transforming work-force management in the USA'
in Clark,K., Hayes,R., & Lorenz,C. (eds.) *The uneasy alliance: managing the productivity-technology dilemma*
Boston, Ma.: Harvard Business School Press

Zaltman,G., Florio,D., & Sirkorski,L. (1977)
Dynamic educational change: models, strategies, tactics, and management
The Free Press